AU/ACSC/4924/AY06

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

FORGING A COMBAT MOBILITY CULTURE

by

Dennis P. Tucker, Jr., Major, USAF

A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

Instructor: Lieutenant Colonel Paul J. Moscarelli

Maxwell Air Force Base, Alabama

April 2006

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
APR 2006		**00-00-2006 to 00-00-2006**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Forging a Combat Mobility Culture	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Air University Press (AUL/LP),131 W Shumacher Avenue,Maxwell AFB,AL,36112-6615**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**41**	

Disclaimer

The views expressed in this academic research paper are those of the author(s) and do not reflect the official policy or position of the US government or the Department of Defense. In accordance with Air Force Instruction 51-303, it is not copyrighted, but is the property of the United States government.

Contents

Page

Introduction

A survey of the various elements of Air Mobility Command (AMC) reveals a distinct cultural change throughout the organization. From the top leadership to the unit level, many in AMC have either adopted or are in the process of adopting a warfighting mindset, looking for ways to mitigate the threat instead of avoiding the threat environment. The current mobility culture is more combat focused, and more capable of meeting the challenges of a non-permissive environment. No longer is the mobility air force (MAF) simply following standard rules and regulations to ensure personnel, cargo and fuel are delivered to the right warfighters, at the right place and time. Instead, the MAF is responding to the transformational defense agenda directed by the President of the United States and articulated in the 2001 Quadrennial Defense Review (QDR)…and to the operational experiences of the last four years.[1] As Major General Mark Volcheff, the AMC Director of Operations (AMC/A3) said in his 3 March 2004 message to all MAF wing and group commanders: "We are going from a culture of rules and regulations to a command of tactical thinking warriors…."[2]

As the 2006 QDR states, "the department must adopt a model of continuous change and reassessment if it is to defeat highly adaptive adversaries".[3] As a subculture within the Department of Defense (DoD), the MAF has certainly responded to Secretary of Defense (SECDEF) Donald Rumsfeld's direction to transform the way we think, the way we train, the way we exercise, and the way we fight."[4] This paper provides a study of the current MAF

---

[1] Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C.: Office of the Secretary of Defense), 6 February 2006, 2.
[2] Maj Gen Mark Volcheff, Director of Operations, Air Mobility Command., memorandum to Mobility Air Force Wing and Operations Group Commanders, subject: Changing Our Mobility Culture, 3 March 2004.
[3] QDR, 1.
[4] Department of Defense, *Elements of Defense Tranformation,* (Washington D.C.: Office of the Secretary of Defense (Office of Force Transformation), October 2004, 2.

culture to ascertain what changes in leadership, doctrine, organization, training and technology have flowed from operations under increased threat conditions. What are the reasons for the changes? Are these changes temporary, or do they indicate a new warfighting mindset that underpins the current and future culture of the MAF?

Organizational Culture

Since this paper will discuss the culture shift in the MAF, it is important to frame the discussion with the definition of organizational culture. In his book, Organizational Culture and Leadership, Edgar H. Schein concludes that organizational culture is: "A pattern of shared basic assumptions that the group learned as it solved problems of external adaptation and internal integration, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems."[5]

Schein's theory discusses culture on three levels: artifacts, values and beliefs, and basic assumptions. Artifacts are the most visible aspects of an organization. They include physical environment, products, behaviors, and things we can see, hear, or "feel" about an organization.[6] In analyzing the MAF culture change, this paper will review artifacts such as leadership statements and messages, doctrine, organizational arrangements, technology, and training focus.

The level below artifacts is values and beliefs. These are those principles or ideas that a group articulates or announces publicly as what they stand for or what they are trying to achieve.[7] Values and beliefs are more difficult to observe, but can be distilled from how leaders and followers in an organization explain and justify what they do. This paper attempts to capture

---

[5] Brian D. Yolitz, "Organizational Change: Is the United States Air Force Doing it Right?," in *Leadership, Command, and Communication Studies Academic Year 2006 Coursebook* (Edited by Sharon McBride, Maxwell AFB, AL: Air Command and Staff College, October 2005), 57.
[6] Ibid.
[7] Ibid, 58.

the values, beliefs and mindset of various entities in the MAF by capturing their rationale, justifications and thoughts in publications, staff work, interviews, surveys and other forums.

Lastly, there are basic assumptions which lie at the deepest level of organizational culture. These tend to be those ideas, concepts, or beliefs the group does not question or debate, therefore they tend to be extremely difficult to change. Assumptions are the result of continually validated and reinforced values; they guide group perceptions and thoughts about a situation.[8] In order for the MAF culture to truly undergo a permanent change to a combat focus, these deeper level assumptions must change.

"The three levels of culture are dynamically interrelated; each level influences the others. This interrelationship is often overlooked by managers and may explain why they sometimes fail to actually change culture. Many attempts to change culture focus on surface-level artifacts without changing deeper values or assumptions. Such changes are doomed to be temporary."[9]

Now that culture has been defined, it is important to stress that leaders in an organization can have a profound effect on the culture of that organization. Schein says, one of the most powerful mechanisms that founders, leaders, managers, or even colleagues have available for communicating what they believe in or care about is what they systematically pay attention to."[10] This paper will show that AMC leaders have been paying attention to a combat mobility culture.

Historical Background

To understand how the MAF culture is changing in response to increased threat conditions, it is important to understand the historical culture of mobility forces. There are three subcultures in the MAF that historically have had different views of their warfighting role. These three subcultures are intertheater airlift, intratheater airlift and air refueling. As far back

[8] Ibid.
[9] Ibid.
[10] Ibid 59.

as World War II, the cultural differences between strategic intertheater airlift and tactical intratheater airlift were apparent. The Air Transport Command (ATC) handled strategic airlift, from continental United States (CONUS) to theater or from one theater to another. The Troop Carrier Command (TCC) handled tactical airlift within the theater in support of combat operations. This separation into two commands, ATC and TCC, led to the perception that ATC performed rear area 'airline' type missions and TCC performed combat missions.[11] ATC and TCC values differed in terms of force protection. Troop carrier units accepted combat losses as part of the mission, accepting risk in order to directly support the warfighter. ATC units were far more conservative. ATC regularly sacrificed prompt results for protection of assets.[12]

After World War II, the Military Airlift Transportation Service (MATS) was formed in 1948, centralizing command and control of all Air Force and Navy strategic airlift. The Air Force did not make its tactical airlift part of MATS. Tactical forces remained under the control of theater commanders. In addition, 1948 was the year the first dedicated air refueling squadrons were created to support strategic air command (SAC). Through the mid-1960s, strategic airlift under MATS and air refueling under SAC were focused more on the SAC mission than combat preparation. Tactical airlift forces opposed integration with strategic airlift using arguments that tactical crews were culturally more in concert with the Army units they supported.[13]

The distinctions between the three subcultures of tankers, intertheater and intratheater narrowed during the Vietnam War. MATS argued that it had some of the same airframes as the troop carrier units in Tactical Air Command (TAC) and that its missions spanned from air drop to global nuclear support and therefore MATS and TAC airlifters should be united. TAC

[11] Glen R. Downing, "The Mobility Air Forces: Unifying Culture for Contemporary Challenges," (Fort Leavenworth, Kansas: School of Advanced Military Studies, United States Army Command and General Staff College, 2005), 15.
[12] Ibid.
[13] Ibid., 20

continued to argue for separation in support of highly specialized training and the inherent trust between supported units and airlifters found in tactical elements. In some cases, MATS aircraft operated in a combat environment alongside TAC airlift blurring cultural lines.

In addition, KC-135s had a cultural clash with SAC's rigid adherence to rules. KC-135s assigned to SAC took on more of a tactical, warfighting mindset in Vietnam, showing courage and dedication to fighter and bomber crews facing enemy action. In the words of one KC-135 pilot: "No American pilot or crew failed to reach his home base, or had to leave his aircraft for lack of fuel if there was a tanker anywhere near, regardless of the geographic location of the troubled pilot or aircraft. In that case, so far as the tanker crews were concerned, no rules applied.[14] These comments are indicative of a cold war organizational culture clashing with a very real combat war over Vietnam.

After Vietnam, refueling assets remained in SAC, and kept more of a rigid mindset of rules and regulations. On the airlift side, military airlift command (MAC) (which was the new name for MATS since 1966) was designated as a specified command and received all airlift assets, both strategic and tactical in 1977. This led to doctrinal manuals in the 1980s describing airlift as neither strategic nor tactical. Thus from the late 1970s through the first couple years of the 1990s, the tactical culture began to diminish, as all missions were simply airlift missions.

In 1992, General McPeak reorganized the USAF. Mobility assets to include tankers became part of AMC, except for C-130s which were assigned to Air Combat Command (ACC) until 1997. The period of 1992-1997 re-established in many C-130 crewmembers the tactical airlift mindset found during the years before MAC. General Loh, the ACC commander built the combat aerial delivery school (CADS) to focus the C-130 on its tactical role. This organization

[14] Ibid., 25.

had the mission to promote a mindset focused on combat throughout the tactical airlift fleet.[15]

AMC saw the value of CADS and developed its own center of excellence, the Air Mobility Warfare Center (AMWC). AMWC absorbed ACC's CADS in 1997 after the return of C-130s to AMC. When C-130s joined AMC, it brought together the three dominant subcultures of air mobility for the first time. Tankers, strategic airlift and tactical airlift were all in one command. The tanker and strategic intertheater airlift cultures were similar, making the C-130 tactical culture the minority. The question is, has the increased threat environment in a post 11 September 2001 world merged the three sub-cultures into one combat mobility culture?

Threat Environment

Since 9/11, tankers, intratheater airlift and intertheater have been immersed into a combat environment. As the current *Global Mobility CONOPS* states, "the role of US military forces in the world depends on effectively projecting and sustaining our forces in distant environments where the adversaries may seek to deny us access."[16] Air mobility is the key element of the U.S. military that projects and sustains forces, and the recent combat environment has placed MAF aircrews well within the threat envelope of both anti-aircraft artillery (AAA) and man-portable air defense systems (MANPADS) on almost a daily basis.

The MANPADS threat is serious. While addressing the Asia-Pacific Economic Cooperation Forum, Secretary of State Colin Powell warned that "no threat is more serious to aviation" than MANPADS.[17] Easy to use and readily available on the black market, MANPADS do indeed pose an imminent and acute threat to military aircraft and civilian airliners. All airlift and refueling aircraft are vulnerable to this threat. Joint Tactics, Techniques and Procedures

---

[15] Ibid, 28.
[16] Department of the Air Force, *Global Mobility CONOPS,* 30 January 2006, on-line, Internet, 20 February 2006, available from https://private.amc.af.mil/a3/a35/gm_revision.html, 1.
[17] Sarah Chankin-Gould, and Matt Schroeder, "MANPADS Proliferation," January 2004, n.p., on-line, Internet, 20 February 2006, available from http://www.fas.org/campaigns/MANPADS/MANPADS.html.

(TTPs) for Airlift Support to Joint Operations states "large fixed wing airlift aircraft have significant radar signatures and lack maneuverability and many have no onboard defensive systems. Additionally, they fly at relatively slow air speeds, prolonging their exposure to attack."[18] In the Gulf war, MANPADS hit near half of all U.S. aircraft lost to the Iraqi forces.[19]

According to *Jane's Intelligence Review*, more than half a million MANPADS have been delivered worldwide, and many of these are still operational.[20] Many thousands are thought to be on the black market and therefore accessible to terrorists and non-state actors. Many countries and terrorist groups are known to possess MANPADS (see Appendix A and B). Among the most numerous and best known MANPADS are the Russian Strela (SA-7 and SA-14), Igla (SA-16 and SA-18), and the U.S. manufactured FIM-92 Stinger.[21] Ironically, the United States now has to contend with its own threat since "During the Afghanistan war, the U.S. gave Afghan rebels stingers to use against the Soviet Air Force. Since then these Stingers have been sold to neighboring countries and terrorists groups to include Osama bin Laden."[22]

MANPADS are very attractive to the current insurgents in Iraq because they are lethal, highly portable, concealable and inexpensive. Insurgent groups seek MANPADS because they are effective against aircraft used in counter-insurgency operations. During the Soviet occupations of Afghanistan, rebels used United States supplied Stinger missiles to damage or destroy hundreds of aircraft, degrading the threat from Soviet air power.[23] In addition, MANPADS are easily transported and hidden. MANPADS fit in a golf club bag or in the back

[18] Joint Publication 4-01.1, *Joint Tactics, Techniques, and Procedures for Airlift Suppport for Joint Operations*, 20 July 1996, III-5.
[19] Thomas A. Freese, "Force Protection and Strategic Air Mobility: The MANPAD Challenge," (Newport, Rhode Island: Naval War College, 5 February 1998), 4.
[20] Mark Hewish, and Joris Janssen Lok, "David versus Goliath.," *Jane's International Defense Review*, April 2004, 46.
[21] Chankin, n.p.
[22] Freese, 5.
[23] Chankin, n.p.

of a truck. This allows insurgents to pull over on the side of the road, take a shot at an aircraft, and get back in and drive off before they can be located. Thirdly, early model MANPADS can be acquired on the black market for several thousand dollars.[24]

According to the 2006 QDR, DoD must be prepared to continually conduct long-duration counter-insurgency operations and deter aggressors through forward presence.[25] Since air mobility can expect to continue to fly into non-permissive counter-insurgency environments, the organization must learn to operate with an ever-present MANPAD threat. It follows that the MAF culture must adapt and overcome in this new threat environment in order to meet the strategic goals of the United States. According to a survey conducted by the author, MAF pilots recognize and embrace the ongoing culture change and attribute it to the current operating environment and the Global War on Terrorism (GWOT) (See Appendix C).

Attacks on aircraft in Iraq have added a sense of reality to the new combat environment. In November 2003, and A300B4 freighter operated by the parcel carrier DHL was hit by an SA-7 (or a more modern variant) at a height of about 8,000 feet during climb-out from Baghdad. The aircraft lost all three hydraulic systems and all flight controls, but the pilots were able to carry out a safe landing using only engine power settings. This incident was followed in December 2003 by a similar attack on a USAF C-17 airlifter carrying 46 passengers and crew again on climb-out from Baghdad. Once again the crew recovered the aircraft safely. Then in January 2004, a C-5 Galaxy transport was hit by ground fire soon after take off from Baghdad.[26]

Current Events

The MAF's response during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) are keen indications that there is a culture shift going on in AMC. It is evident

[24] Ibid.
[25] QDR, 38.
[26] Hewish, 46.

that the intertheater airlift and tanker communities are beginning to adopt the warfighting, tactical mindset of the intratheater C-130 community.

On the night of 7 October 2001, OEF commenced with C-17 sorties over Afghanistan providing humanitarian rations. It was unique to have intertheater airlift operating deep in enemy territory on the first night of the war while simultaneous combat operations were occurring against Taliban and Al Qaeda targets. The crews flew 7 hour missions from Germany to the drop zone, and had to pre-breath oxygen in order to drop from high altitude.[27]

The airdrops were flown from October through December 2001, and were very successful with over 200 missions and over 2,544 flight hours. The missions delivered 2.4 million humanitarian daily rations (HDRs) and documented a number of unprecedented combat accomplishments: First C-17 combat air drop, highest C-17 airdrops ever, first use of night vision goggles (NVGs) within a C-17 formation air drop and the longest continual C-17 sortie.[28]

Not only did C-17 intertheater airlift adopt a warfighting mindset, but tankers did as well. KC-10s operated deep within Afghanistan during the initial attacks, crossing the traditional concept of a forward edge of the battle area (FEBA) in order to support strike operations. In addition, KC-135 air refueling assets operated over enemy territory, often in support of aircraft that required refueling at lower altitudes. These lower altitudes exposed the KC-135 crews to significant amounts of surface-to-air fire. These aircrews demonstrated a tremendous amount of courage since crew training did not focus on tanker operations over enemy territory.[29]

In OIF, the C-17 strategic airlift took on a tactical, warfighting role once again. On March 26th, 2003, 17 C-17s dropped 965 paratroopers of the 173rd Airborne Brigade and their

[27] Shane M. Hershmann, "Employment of the C-17 in Airdrop and Airland Operations in Closing the Force," (Carlisle Barracks, Pennsylvania: U.S. Army War College, 18 March 2005), 6.
[28] Ibid.
[29] Downing, 32.

equipment outside Bashur, Iraq. "This was the largest C-17 formation ever and the largest single pass drop at night since D-Day. 62 C-17 sorties assembled a whole brigade in just five days."[30]

The C-17 crews accomplished the 173rd airdrop into a combat zone that required tactical planning to mitigate hostile ground activity and to defeat small arm and MANPAD threats to include night, high altitude routing, with a steep decent to the drop zone to minimize exposure to the threat.[31] This mission certainly speaks volumes about the changing culture of strategic airlift…with the C-17 being the workhorse that is bringing strategic airlift into the fight.

The above OIF and OEF examples were responses to warfighter needs. These responses have set the tone for changes in the MAF's cultural mindset, observable in the areas of leadership, doctrine, organization, training and technology.

Leadership

As John P. Kotter says in his book *On What Leaders Really Do*, "the function of leadership is to produce change."[32] He goes on to say that leaders not only produce change but also set the direction for that change through vision and strategies. Moreover, in his textbook *Leadership: Enhancing the Lessons of Experience*, Richard Hughes defines transformational leadership as that "which serves to change the status quo by appealing to followers' values and their sense of higher purpose. Transformational leaders articulate the problems in the current system and have a compelling vision of what a new society or organization could be."[33]

Maj Gen Volcheff, certainly embodied these principles while he was the Director of Operations at AMC. On 3 Mar 2004, he put out the first in a series of messages to his wing commanders, titled "Changing Our Combat Mobility Culture." The first paragraph read:

---

[30] Hershmann, 7.
[31] Ibid.
[32] John P. Kotter, *John P. Kotter on What Leaders Really Do* (Boston: Harvard Business School Press, 1999), 54.
[33] Richard L. Hughes, Robert C. Ginnett, and Gordon J. Curphy, *Leadership: Enhancing the Lessons of Experience, 5th ed.* (Boston, MA: McGraw-Hill Co, 2005), 408.

> The capability to conduct global, sustained airlift operations, in non-permissive environments, is unique to the U.S. and is critical to achieving our national objectives. The GWOT has demonstrated the ability of the MAF to adapt and flex to new missions and taskings. Since the early days of OEF, we have evolved our TTPs to meet these missions and taskings. While our TTPs have rapidly evolved and adapted in the face of this challenging combat environment, our shift in culture has not necessarily kept pace. AMC recognizes this 'cultural shift' as necessary on our growth path to the future. We must change our mobility culture into a combat focused and purposed culture…we will all be tacticians. AFTTP 3-3 Volumes are the first step to initiating this culture change[34]

The above message excerpt from Maj Gen Volcheff is just one example of many that shows the MAF leadership is having a tremendous role in MAF transformation efforts. In his opening paragraph, he articulates the current problems when he says, "our shift in culture has not necessarily kept pace." He then gives a vision for what the MAF could be by saying "We must change our culture into a combat focused and purposed culture…we will all be tacticians." This is exactly in line with how Hughes says a transformational leader communicates.

The leadership within AMC has done an incredible job of forging a combat mobility culture. They have certainly done well with changing surface level artifacts and values throughout the organization, and in some cases it appears they are starting to affect the underlying assumptions of members of the organization, which of course is the key to successfully changing culture more than temporarily. See author's survey at Appendix C for evidence that underlying assumptions of MAF crewmembers are now more combat focused.

According to Major Todd White, a C-130 Navigator, the roots for the culture change in the MAF have been growing at the crewmember level ever since the C-130s were brought back into AMC from ACC. Major White goes on to say that the leadership in the MAF has led this change from the top down since 9/11.[35] Within weeks of the 9/11 attacks on the World Trade Center in New York, General Handy took over as AMC commander. As a career airlifter with

[34] Volcheff, 1.
[35] Major Todd White, Air Command and Staff College, Interviewed by author, 16 February 2006.

more than 300 combat hours in Vietnam, he was perfect for the job. To accomplish his mission of MAF transformation, he assembled a guiding coalition of other tactically minded, yet mobility focused individuals. AMC's Vice Commander, Lieutenant General Baker was a career fighter pilot and distinguished graduate of the USAF Weapons School (USAFWS), the Air Force's premiere tactical employment school. These two leaders articulated their vision to bring the MAF into the 21st century with a warfighting mindset that could successfully support the new GWOT.

Similarly, the new AMC commander, General McNabb has continued to embrace the concept of a culture change. As the final speaker at the recent Airlift/Tanker Association convention in 2005, he said "we are in this GWOT for the long haul and we've got to continue to do this better…AMC members need to transform in order to continue providing contingency aid and accomplish more with what they have."[36] The general said there are three parts of transformation: organization, concept of operations and technology. In closing, he stressed that AMC is learning from the GWOT: "We've never had such a combat-ready force."[37]

Bringing in Lt. Gen Baker was a great move for AMC. His warfighting mindset brought about a lot of new initiatives to include the first ever MAF tactics conference (MAFTAC) in August 2004. "After seeing current operations in OEF and OIF, General Baker wanted to change the mindset of mobility airmen. Thus, the theme of MAFTAC was "Forging a Combat Mobility Culture."[38] In response to the MAFTAC initiative, Major Sernel, the Chief of C-130 Tactics at Headquarters (HQ) AMC said "Mobility is becoming more offensive and the threat is more elusive. The chance of flying into harm's way is a huge change for some mobility

[36] Ed Gulick, "Leader Envisions Future of Air Mobility Command," U.S. Department of Defense Tranformation, November 2005, n.p., on-line, Internet, 25 February 2006, available from http://www.defenselink.mil/transformation/articles/2005-11/ta110205b.html.
[37] Ibid.
[38] Rachel Martinez, "Conference Changes Mobility Culture," *McGuire Airtides* 55, no. 31 (6 August 2004), 3.

aircrews."[39] Examples like this permeate the organization, and show that some of the underlying assumptions are beginning to change (see Appendix C for evidence of underlying assumptions).

Leadership is an essential driver when looking to change the culture within an organization. Not only has the leadership within AMC been responsible for the overall culture change, but unified command and service leadership from above has also embraced and indicated the need to change to a combat mobility culture. For example, in an August 2001 interview, even before 9/11, the U.S. Transportation Command (TRANSCOM) Commander, General Charles T. Robinson, Jr., stated that "force protection of aircraft deployed to unsettled areas and defensive systems against shoulder fired missiles…round out TRANSCOM's chief budgetary priorities." He even alluded to the idea of the need for future transport aircraft that are stealthy, indicating that MAF aircraft need a capability to fly in non-permissive environments.[40]

Likewise, both CSAF John Jumper and SECAF James Roche promoted the concept of a culture change within the air mobility community in their November 2003 *USAF Transformation Flight Plan*. In the plan, it explains that air mobility must be able to "support the full spectrum of operations and be capable of rapidly establishing air operations and provide movement of forces under increased threat conditions that have historically restricted MAF access."[41] It goes on to explain that enhanced defensive systems will allow operations in hostile threat environments. This kind of direction from the Air Force leadership has offered vision and validity to the culture changing mindset that has been promulgated down through the ranks by MAF leaders, and has begun to show up in the thoughts and written doctrine of MAF aircrews.

Doctrinal Changes

[39] Ibid., 4.
[40] John A. Tirpak, "Mobility Boss Says Airlift Upgrades Key to New Strategy," *Aerospace World,* August 2001, n.p. on-line, Internet, 18 February 2006, available from http://www.afa.org/magazine/aug2001/0801world.asp.
[41] Department of the Air Force, *The U.S. Air Force Transformation Flight Plan (*Washington D.C.: Headquarters United States Air Force (Future Concepts and Transformation Division, November 2003), 67.

One of the key ways to capture the thoughts of an organization is to write them down and codify them as best practices or the recommended way things should be done. The MAF has captured new thoughts on how to operate in the increased threat environment with the publication of tactical doctrine for all of the AMC aircraft. AFDD 1 says, "military doctrine presents considerations for how a job should be done to accomplish military goals. It is a store house of analyzed experience and wisdom."[42]

In Maj Gen Volcheff's quote used earlier, he stressed that while the MAF's TTPs have rapidly evolved in the face of the combat environment, the shift in culture has not kept pace. He points out later that "AFTTP 3-3 volumes (for combat aircraft fundamentals) are the first step to initiating this culture change."[43] According to Major White, a C-130 weapons school graduate, the stand up of the AFTTP program for all of the major airframes in the MAF is one of the key reasons why the culture change is here to stay.[44]

For the first time, the MAF warriors have a mindset to capture their combat experience on paper so others can learn from proven tactics that work. The captains and majors that have flown in OEF and OIF are the ones who developed the AFTTPs, and they will be the future MAF leaders. The survey at Appendix C shows the combat mindset of some of these officers.

In Maj Gen Volcheff's second combat culture change message to the crew force, on 9 July 2004, he said "We're well on our way to improving the focus of our combat mobility culture. AFTTP 3-3 volumes for five of our major weapon systems were drafted and coordinated in record time. These volumes written with your input, are the foundation of tactical flying within the MAF, and will give you a base to build upon your combat flying skills."[45]

---

[42] Air Force Doctrine Document (AFDD) 1, Air Force Basic Doctrine, 17 November 2003, vii.
[43] Volcheff, 1.
[44] White, 1.
[45] Maj Gen Mark Volcheff, Director of Operations, Air Mobility Command, memorandum to Mobility Air Force

The decision to write AFTTP 3-3s followed by AFTTP 3-1s, Tactical Employment for all major AMC aircraft, was timely. The decision corresponded with the return of many aircrew members from OEF and OIF. They had many combat hours to draw from, and were able to produce documents that were relevant and current for all MAF aircrew members who will be going into the fight. The key is that these documents allowed for other key components of the MAF to study the TTPs and incorporate them into training requirements and evaluation standards. Warfighters also used TTPs to capture lessons learned that others can use for training.

For example in AFTTP 3-1.25, Tactical Employment—C-130 dated 11 April 2004, it states that "in general, MAF aircrew knowledge of tactics and defensive systems was inadequate at the beginning of OIF. Many did not have the knowledge or proficiency to correctly operate the C-130 defensive systems, effectively react to threats, or efficiently fly tactical approaches in combat. Sufficient MAF standard training processes do not currently exist to correct this problem in the future."[46] It is this kind of candid documentation in the AFTTP that identifies deficiencies and inspires training to want to fix the problem in a hurry.

The writing of this tactical doctrine has inspired critical thought at the mid-officer level in the MAF. For the first time, a warfighting mentality is being embraced by senior leadership and officers below, and it appears to be because their thoughts on how to better operate tankers and airlift in the fight are being heard, documented, endorsed, and then trained to others in AMC.

There have been factions in the mobility community that have recognized the problem before, but that was not enough to change the culture. As mentioned earlier, to really change culture, there has to be a change in values, beliefs, and underlying assumptions. For example, in

---

Wing and Operations Group Commanders and Personnel, subject: Changing Our Mobility Culture Memo #2, 9 July 2004.

[46] Air Force Tactics, Techniques and Procedures (AFTTP) 3-1.25, *Tactical Employment, C-130* (U), 11 April 2004, A2-41. (Secret) Information extracted is unclassified.

a 1970 research study called "The Future of Combat Airlift in MAC", a major at ACSC points out "there are numerous aircrew personnel and some staff officers that still think of MAC as an "airline-type" of operation. This is mainly in the so-called "middle management" ranks of senior captains to lieutenant colonel. So a continuing education program on what combat airlift is and how it should and will be employed is essential to overcoming the thinking of this group."[47]

In the example above, the major was writing a paper documenting combat airlift during the Vietnam War. The problem was that nobody in the command was looking to change the culture. The thoughts and deeper levels of the organization were not targeted for change by the leadership, nor were thoughts on tactical combat valued enough to be captured in formal doctrine. This is the key difference between what is happening today and what has happened in the past in AMC. Today the focus is on underlying thoughts and assumptions. In the past, the focus was on putting a lesson together on what combat airlift meant. These education efforts were a very surface level answer to a deeper problem.

Organization

The warfighting mindset is permeating all levels of the mobility organization. The leadership is conveying it verbally and in written form, the mid level officers are documenting it in doctrine, and the younger crewmembers are experiencing the new threat environment first hand. When various levels of an organization begin to think differently, the organization tends to change over time, being shaped by the thoughts of the leaders and subordinates.

The biggest change visible in AMC occurred in October 2003, when the command stood down it two numbered air forces (NAFs) and transferred non-warfighting functions (organizing, training, and equipping) to the HQ staff. In like manner, former warfighting functions of the

[47] Joe T. Griffith, "The Future of Combat Airlift in MAC," Research Study no. 0565-70, (Maxwell AFB, Alabama: Air Command and Staff College, 1970), 74.

NAFs transferred to the newly activated Eighteenth Air Force (18 AF). This organizational change within AMC yields two distinct advantages to the regional combatant commands. First, AMC presents a streamlined fighting force under a single NAF commander. Second, AMC strengthened air mobility support by creating two light, lean, and agile response forces from the remnants of the legacy NAFs known as Expeditionary Mobility Task Forces (EMTF).[48]

This major organizational change was done to pursue AMC's commitment to "enrich its expeditionary culture and warfighting focus."[49] The EMTFs report to the 18 AF Commander, and each supports three combatant commands. Each EMTF commander has an air mobility operations group (AMOG) that is headquartered at a forward base and has 13-14 locations for the MAF to project combat power when needed.

In addition, each EMTF has a contingency wing that consists of expeditionary teams that can surge forward to one of 27 locations to deliver and sustain joint forces within 12 hours of notification as well as employ theater air-mobility forces. This capability gives the war-fighting commands the flexibility to place expeditionary forces according to need. Moreover, the EMTF commander may deploy forward on behalf of AMC to serve as the Director of Mobility Forces in the Air Operations Center (AOC). In summary, as an expeditionary war-fighting entity of AMC, the EMTF provides a foundation of rapid projection and sustainment of U.S. military might.[50]

The rise of 18 AF and the EMTF war-fighting focused organization certainly is a huge cultural change for AMC. Now the MAF is focused on combat on a day-to-day basis, not just when a war plan is being executed. Another huge organizational change that occurred in 2003 was the stand-up of the USAF Mobility Weapons School (USAFMWS). According to Major

---

[48] Bobby J. Wilkes, "Expeditionary Mobility Task Force: Projecting Combat Power," *Air and Space Power Journal,* Summer 2005, n.p., on-line, Internet, 14 February 2006, available from http://www.airpower.maxwell.af.mil/airchronicles/apj/apj05/phisum05.html.
[49] Ibid.
[50] Ibid.

White, a C-130 "patch wearer," the inclusion of C-130s into the USAFWS in 1996 followed by the creation of the USAFMWS in 2003 is the biggest reason for the MAF tactical culture change.[51] The "patchwearer" C-130 operator and intel officer graduates from the USAFWS have helped to bring squadrons and wings into a more tactical mindset.

The stand-up of the USAFMWS did not happen over night, nor was it guaranteed to come into existence. Some argue, if it were not for the transfer of C-130s to ACC along with their HQ AMC positions, the USAFMWS would not have come into existence. Before the transfer, airlift was part of MAC, and MAC's leadership put little emphasis on tactics. No formal tactics improvement program or defensive systems equipment even existed on MAC aircraft." Reliance on tactics knowledge came from those with Vietnam experience. In addition, experience as an evaluator was the only major pre-requisite for a tactics officer.[52]

Circa 1994, after MAC became AMC, tactics came to a crossroads. C-130s went to ACC, along with respective AMC HQ positions. Since C-130s were the only airframe with a tactics focus, AMC dissolved its Tactics Division altogether. It then stood up the AMWC at Ft. Dix, New Jersey to be the center of tactics. Not much changed in AMC with regard to tactics from 1994 to 1997. Aircrew tactics were Desert Storm-based and low in priority. In 1996 the AMWC released a "Tactics is Broken" white paper with a dismal view of AMC tactics.[53]

Simultaneously, the C-130s in ACC were thriving. ACC incorporated them into their tactics improvement process, they developed their own AFTTP 3-1, and they built a weapons instructor course at the USAFWS. They even began equipping C-130s with defensive systems.[54]

In 1997, the C-130s returned to AMC, and AMC tactics came alive. HQ AMC

[51] Major White, interview.
[52] Linden A. Fravel III, "Tactics: AMC's Phoenix—Part 1," *USAF Mobility Weapons Journal* 2, no. 2 (Fall 2005), 8.
[53] Ibid., 9.
[54] Ibid.

established the combat operations division as the lead for tactics, created the tactics review board and the release of AMC Instruction (AMCI) 11-207, AMC Tactics Program, stipulating tactics manning for different organizational levels. Along with the C-130 return, 86 HQ AMC staff positions were returned from ACC. This infused AMC with a new tactical mindset at the squadron and HQ level.[55]

In 1997, The C-130 weapons instructor course at the USAFWS also became part of AMC, ensuring that the latest tactics knowledge would be integrated into the AMWC tactics academics and funneled up to the AMC staff. As graduates from the WIC began to be assigned to HQ AMC, the seeds for a future culture change were being planted.

Today, AMC's tactical mindset and practices are growing exponentially. In February 2003, Lt Gen Baker saw that tactics was not properly communicated down to the aircrew level, so he directed the creation of the AFTTP 3-3 series volumes and forced training to reflect AMC's tactical doctrine. He also directed the stand-up of the USAFMWS, with a C-130, KC-135, and C-17 division. Since this has occurred, tactics has become a priority in AMC. Squadron and group leadership now recognize the value of their "patchwearer" graduates from USAFMWS, and are looking to them to help build effective tactics training programs.

From an organizational stand point, AMC really has embraced a tactical, warfighting mindset. For example, AMCI 11-207, *AMC Weapons and Tactics Program,* dated 19 Jun 05, spells out tactics responsibilities for each of the directorates at the HQ along with the manning, qualifications, duties, and responsibilities of weapons and tactics shops at the wing, group and squadron level for airlift and tanker airframes. In addition, it specifies procedures that assist MAF forces to operate in a hostile threat environment.

Not only does AMCI 11-207 explain in garrison functions, but it also gives guidance to

[55] Ibid.

tactics shops on how to deploy and employ as a stand alone function or in augmentation of an existing air and space expeditionary force (AEF) tactics cell. The AMCI 11-270 states: "Weapons and tactics flights will deploy under UTC XMCA3(airlift) and UTC XMCA4 (tankers) with the equipment and manning to operate at a beginning of a conflict when the ops tempo is high, i.e. 24 hour operations."[56] It goes on to say that tactics flights will ensure crews get current intel updates and will determine appropriate tactics, techniques, and procedures (TTPs) to mitigate those threats and minimize risk to operations.[57]

Intelligence

One of the greatest changes in AMC thinking has occurred in the intelligence directorate (AMC/A2). According to Major Alex Berger, the Director of Operations for the HQ AMC Air Intelligence Squadron, "the MAF is most definitely undergoing a culture shift…a number of issues apply to this change, many of which are focused on how we integrate intel into mobility operations."[58] Major Berger explained the old way of doing business was to give crews an intel brief prior to them taking off, and no threat updates until they were in radio contact with the tower about 30 minutes out from their destination. Technology (beyond-line-of-site secure communications) and organization (with the AOC adjusting missions on the fly) gives the ability to push near real time (NRT) all-source intel to crews at any stage of a mission. He went on to say that simply building technology and communication pipes is not enough to achieve the desired effect of having threat-aware crews and C2 agencies—"we need some organizational changes to ensure information flows seamlessly throughout the TACC and to the crews."[59]

---

[56] Air Mobility Command Instruction (AMCI) 11-207, *Air Mobility Command Weapons and Tactics Program*, 14 June 2005, 27.
[57] Ibid, 30.
[58] Berger, Major Alexander, Director of Operations, AMC Air Intelligence Squadron, memorandum via email to Major Dennis Tucker, student Air Command and Staff College, subject: RE: Need Help, 28 February 2006.
[59] Ibid.

There must be a corresponding cultural shift in the way crews and C2 agencies use and pass information for global, NRT situational awareness (SA) in AMC. Major Berger says this will be difficult, since "many old-heads in the TACC still view it as a 'flight dispatch' type of organization (the airline model) versus a warfighting AOC with C2 over more sorties a day than all five falconer AOCs combined."[60] The most important push in this area was by Lt Gen Baker who approved the "MAF Integrated Flight Management (IFM) Operating Concept" that lays out the vision to evolve the TACC into a collaborative and threat/situational aware C2 center.

The MAF IFM Operating Concept is a plan to make MAF C2 agencies such as the TACC, Air Mobility Operations Control Centers (AMOCCs) and AOCs capable of using collaborative intel resources and shared SA to support planning and execution. Benefits include faster, more responsive solutions to potential sortie/mission threats and disruptions. The new focus on using the TACC's intel resources to help the MAF survive in a combat zone versus avoiding combat can be seen in the following IFM Operating Concept quote:

> The MAF routinely operates in potentially hostile areas of the world where dangers to assets are both highly fluid and increasingly lethal. It is therefore extremely important that planners make full use of Intelligence, Tactics, and IO resources to mitigate threats throughout the mission planning phase. During sortie planning and execution, IFM processes must be fully capable of responding to short- notice intelligence updates, developing risk mitigation options, and passing actionable Tactics/IO plans in near-real time to MAF aircrews. The ability to effectively identify and counter threats is critical to mission/sortie success.[61]

According to Major Berger, from an intelligence perspective, the MAF IFM Operating Concept may be the single biggest driver behind the future cultural change in this command.[62]

Major Berger also identifies intelligence and tactics integration in the command as part of the culture change. AMCI 11-207 lays out guidance that intelligence and tactics be co-located

---

[60] Ibid.
[61] Department of the Air Force, *Operating Concept, Mobility Air Forces Integrated Flight Management* (Scott Air Force Base, Illinois: Headquarters Air Mobility Command, 8 October 2004), 1.
[62] Ibid.

and integrated in training and operations. "Some units have even integrated scenario based training events with intelligence briefs prior to flying local area training missions—essentially giving a reason why the crews are practicing certain tactics."[63]

Bottom line, intelligence is helping the MAF grow into a warfighting culture. Intelligence analysts attend all of the tactics conferences since the threat, as articulated by intelligence, drives all changes to tactics. More intelligence positions are showing up at the squadron level, and AMC intelligence personnel are joined with operators for exercises such as Red Flag. Finally, HQ AMC/A2 has put an intelligence officer on the TACC floor, 24 hours a day, 7 days a week to provide NRT intel updates to the TACC senior who has C2 over all inter-theater airlift missions. The goal is to make the TACC threat aware and allow them to make operational risk management (ORM) decisions based on NRT intelligence updates.[64]

The warfighting focus can also be seen in the AMC Threat Working Group (TWG) which is chaired by AMC/A2 and meets every day during the week at 0800. The TWG is composed of O-6 level principals from Intelligence, Operations, C2, Security Forces, Office of Special Investigations, and the Surgeon General along with action officers. Associate membership includes national agency (DIA, CIA, NSA, etc.) representatives. The TWG reviews all AMC intertheater missions for the next 7 days, provides risk assessments and works with planners to ensure mitigating actions/tactics, and force protection measures are taken into consideration to mitigate the threats presented by hostile forces. Recommendations are provided to the AMC/A3.

Training

Training is another area where a significant culture change can be identified. Lt Gen Baker set the tone for the AMC Training Focus in July 2005: "The issue is what training do they

[63] Ibid.
[64] Ibid.

need when they return that they need when they go back…Let's make sure we're focused on the war, i.e. using our precious flying hours to train our crews for the current shooting war…have we looked at our new training tables with that in mind?"[65] Maj Gen Volcheff kept the focus sharp: "as a part of the combat mobility culture, requirements will be driven by the combat mission today and…the future. Training experts will study current and future combat requirements to build the best training plan achieving a defensive and offensive tactical mobility culture."[66]

The command used its annual MAFTAC to create recommended changes to training tables for all of the major AMC airframes. Over 200 AMC aircrew members and leadership broke up into groups by airframe and came up with recommended annual and semi-annual training changes that focus on the wartime mission. The result added tactical events consistent with current threats and reduced or deleted events that did not pertain to a combat environment. For example, the C-130, C-17 and C-5 all added NVG take-offs/landings to their semi-annual training requirements, and moved instrument approach takeoffs/landings to the simulator.

In addition, AMCI 11-207 identifies a tactics training continuum in order to improve combat capability (see Appendix D). This continuum lists both individual and crew force training options available to create mobility tactics experts. Individual options include the Mobility Electronic Combat Operator's Course (MECOC) which is the only formal electronic warfare training offered by the MAF. MECOC trains MAF operators to become the tactical experts on missile warning systems, chaff/flare countermeasures, radar warning receivers, and SA systems. MECOC students graduate with knowledge of the latest crew TTPs and advancements in threat warning and countermeasure systems, and return to their units as the subject matter expert on the employment of these systems.

[65] Major Yetishefsky, "AMC Training Focus," Powerpoint Presentation, 26 Jul 05, on-line, Internet, 20 February 2006, available at https://private.amc.af.mil/a3/a37t.
[66] Volcheff, Culture Message Memo #2, 1.

Several other individual training opportunities exist. AMC puts selected aircrew from all airframes and intelligence personnel through the Combat Aircrew Tactics School (CATS) at the AMWC. This course trains crews on all of the latest threats and tactics to mitigate those threats. Thirdly, some individuals get the opportunity to go through one of the three WICs at the USAFMWS, where they graduate to become the MAF's front line expert on tactical employment of their respective airframe (KC-135, C-130, or C-17). Majors White and Rachal singled out the USAFMWS as one of the biggest signs that the new MAF culture is here to stay.[67] "Graduates from the school are responsible for the integration of realistic combat training into our wings and groups….They are the leaders of our ongoing "Combat Mobility" cultural transformation."[68]

Moreover, the crew force gets several opportunities to receive tactical training as a crew. According to Major White, another sign that the tactical culture change is here to stay is that tactics training now occurs at the formal training unit for each airframe. In addition, the Advanced Airlift Tactics Training Center (AATTC) in Missouri instructs active and reserve airmen in combat tactics. Students receive classroom instruction in such areas as low-level dynamics, visual illusions, and aircraft structures, and then fly training missions with simulated AAA and SAM fire.[69] Thirdly, the Joint Readiness Training Center, run by the 34th Combat Training Squadron, provides crew members with realistic, tactical level, joint combat training for low and medium intensity conflicts, tailored to meet the MAF's needs.[70]

As Appendix D shows, MAF crew members are now considered an integral member of the composite force at Red Flags. They train along side the CAF crewmembers, using current

[67] Major White interview, and Major Rick Rachal, Air Command and Staff College, interviewed by author, 17 February 2006.
[68] John W. Handy, "AMC Commander's Welcome," *USAF Mobility Weapons Journal* 1, no. 1, (Fall 2004): 2.
[69] "Long Time Coming," *Air Force Magazine Online,* n.p., on-line, Internet, 14 February 2006, available from http://dc01-cdh-afa03.tranguard.net/AFA.
[70] AFI 11-207, 11.

TTPs to defeat and mitigate the threat versus avoiding the threat. According to Major White, the "training focus is now completely different. Instead of training being focused on what you can't do, it's focused on what you can do."[71] This yet another example of how the underlying values and beliefs of the MAF have taken on a more tactical, risk-accepting mindset.

Technology

Technology is a key enabler for the current MAF cultural transformation. Many believe that technology is one of the main reasons the culture shift has become a reality. Major Rachal says that his mindset on the tactical nature of mobility aircraft has changed due to the current war and because of the technological advancements that are available to MAF crews.[72] Once new technologies are incorporated into ground C2 nodes and airplanes, crews will learn how to use them and come to have expectations of going into a non-permissive environment, fully confident that their state-of-the-art technology and tactics-focused training will help them defeat the threat.

As the new AMC commander, General McNabb stressed at a recent convention, "AMC members need to transform…(and) there are three parts of transformation: organization, concept of operations, and technology….Technology transformation means developing defensive systems that will allow AMC to use different aircraft in different ways."[73] His point is that enhanced defensive systems will allow operations in hostile threat environments.

Most MAF aircraft expected to fly into combat zones are equipped with defensive systems that fire chaff and flares when a missile is detected. The hope is that a heat-seeking missile will follow the flares while a radar-guided missile will become confused by the chaff. Against the SA-7, a Vietnam threat, the chaff and flares should be effective. However, newer anti-aircraft missiles are more difficult to defeat. For example, new missiles are programmed to

[71] Major White, interview.
[72] Major Rachal, interview.
[73] Gulick, n.p.

ignore the flare heat signature or to distinguish between the aircraft and flare trajectories.[74]

After missiles struck a C-17 Globemaster III and C-5 Galaxy two years ago while the planes were taking off from Baghdad International Airport, Air Force leaders realized that missile warning systems were failing in some circumstances. Within three months of the attacks, AF Materiel Command and AMC came up with an electronic-hardware upgrade to defensive systems called the "smart cable." The cable links AN/AAR-47 infrared missile-detection sensors with the AN/ALE-47 flare and chaff dispensing system to improve the overall defensive system capability.[75] This is an example of the command's warfighting mindset, coming up with technological fixes so aircraft can succeed in the combat zone.

In response to the MANPADS threat, AMC got the USAF to pay Northrop Grumman to develop a laser protection capability known as Large Aircraft IR Countermeasures (LAIRCM). LAIRCM uses laser technology to blind the heat seeking missile, producing enough energy to protect large aircraft like the C-17. LAIRCM participated in live-fire tests at the White Sands Missile Range in New Mexico, successfully defeating 19 missiles launched from a variety of ranges.[76] In August 2002, 12 C-17s were equipped with a version of LAIRCM called "LAIRCM Lite." This initial capability mounted a single jamming head under the rear fuselage. The full-up LAIRCM will have an additional two such installations on the forward fuselage. AMC plans to equip many more C-17s, C-130s, and KC-135s with this defensive capability.

In a parallel effort, AMC has responded to increased threat conditions by incorporating NVG technology into combat operations. The need to fly low level at night to mitigate the threat has driven the need for NVGs. According to Major Rachal, in OEF crews leaned forward and

[74] Bruce Rolfsen, "High-Tech Defenses Debuting on Aircraft," *Air Force Times,* 6 February 2006, n.p., on-line. Internet, 30 January 2006, available from http://ebird.afis.mil/ebfiles/e20060130414064.html.
[75] Ibid.
[76] Hewish, 48.

conducted blacked out missions with NVGs for take off and landing, with authorization from the DIRMOBFOR in theater. AMC felt uncomfortable with the lack of training associated with these actions. Major Rachal was on the HQ Standardization and Evaluation team sent to OEF to tackle the problem. His team developed an approved NVG program with appropriate safety measures (e.g. crew augmentation required to watch instruments during take off and landing). While this "just in time" training worked and was given to crews throughout the war, it was still a risk taken by all levels of the organization—clearly showing a new warfighting mindset.

Lessons learned listed in AFTTP 3-1.25 include, "just in time" is too late to create a combat capability. The MAF requires an NVG airland/assault training program. The NVG assault landing training is required prior to needing the capability in combat to ensure "just in time training" lessons are not repeated.[77] This drove the embracing of 'SOF like' NVG training for MAF airframes and a continuation of the culture shift for AMC.

Not only has the airlift community adopted a warfighting mindset, but the tanker community has as well. As an article in the Fall 2004 USAF Mobility Weapons Journal recently pointed out, "as we witness the daily erosion of the theory that refueling operations will not occur in high threat areas, we, as a KC-135 community, are revising our tactics and procedures in a reactive mode." The article goes on to say that tankers have adopted TTPs for external lighting settings so they don't blind pilots during NVG refuelings in a hostile environment.[78]

Now that MAF crewmembers think of themselves as warfighters, they have come to realize that SA is imperative. It is amazing that until recently MAF crews flying into Iraq had little SA of the air or ground order of battle, even though the technology to provide SA exists. AMC has realized the need for real time information to the cockpit (RTIC) and is pursuing these

[77] AFTTP 3-1.25, A2-35.
[78] Matt Petro, "Air Refueling and Night Vision Devices: Two Necessities to Combat Operations and their Necessary Co-Existence," *USAF Mobility Weapons Journal* 1, no. 1, (Fall 2004): 24

technologies for its warfighting aircraft.

To provide crew members with the same SA that the CAF has enjoyed for years, AMC has purchased Combat Track II (CT II) and Airborne Broadcast Intelligence (ABI) for some of its C-17s, and C-130s. CT II and ABI have been successfully employed on B-1s, B-52s, and B-2s, providing critical information about the battlespace to crew members.

According to Major Ty Harris at AMC/A39I, the AMC/A3 has directed all C-17s that fly into the combat zone to have CT II on board. In addition, C-130s at Al Udeid were given the technology by the end of August 2005.[79] CT II and ABI give AMC's airlift fleet an RTIC capability that has not existed previously. Each system plays a unique part in the RTIC equation. CT II allows the user to communicate via secure SATCOM transmissions, with other CT II users including other aircraft and C2 entities. ABI provides tactical awareness through a national data feed with blue and red air picture, threat radars, blue force tracking, missile warning, and CSAR information. MAF crews equipped with CT II/ABI have enhanced SA on a crew friendly display, providing threat detection, identification and location. In addition, it provides GPS position on a moving map display, along with positions of other aircraft with CT II.

Technology improvement also has been a huge enhancement to the TACC and the AOC who can communicate with CT II equipped aircraft over Secret Internet Protocol Router Network (SIPRNET) when running the appropriate software. This allows ground C2 to communicate with aircraft over a secure channel at any point during the mission and is a vital step towards providing up to the minute intelligence to the crews.

The MAF culture change has been recognized and embraced at the Air Force level. In the USAF Tranformational Flight Plan, it describes a future system for all airlift and tanker

[79] Josh Nielson and Jason Terry. "RTIC for One? RTIC for All!!, "*USAF Mobility Weapons Journal* 2, no. 2 (Fall 2005): 10.

airframes known as Advanced Situational Awareness and Counter Measures System (ASACMS). It is defined as: "the Air Force's long-term vision for enhanced SA, threat detection, and radio frequency contermeasures and threat mitigation for mobility assets to help enable mobility assets in defended areas.[80]

Ten years ago the MAF did not embrace the aforementioned kinds of technology changes because as Major White says "up until the mid-1990s, we didn't fly into places we had to worry about." Major Rachal added, we now have a new mindset in the command, "this aircraft is going to go where it will be shot at." With this in mind, AMC has added three space officer positions to the Combat Operations Division (AMC/A39). These positions are helping AMC to take advantage of space and IO capabilities, ensuring airframes and C2 nodes in AMC have the most current space technologies available, to include CT II and ABI. This technology build up in AMC has enabled the beginning of one of the greatest cultural transformations in MAF history.

Conclusion

The MAF is absolutely undergoing a culture change, with members taking on a combat mobility mindset throughout the organization. On the surface, it is easy to pick out artifacts that point to this culture change, like the stand-up of the USAFMWS, publishing of the AFTTP 3-1 and 3-3 series publications, the rise of tactics shops at the squadron, group, and wing levels, and publishing of the USAF Mobility Weapons Journal. Other examples include the MAFTAC conference labeled "Forging a Combat Mobility Culture," the embracing of technology that helps crews with threat SA in combat, and the obvious tactical focus of airframe training tables.

On a deeper level, one can identify a marked change in the values, beliefs, and underlying assumptions of MAF members by reviewing MAF leader statements and looking at how MAF

[80] Department of the Air Force, *The U.S. Air Force Transformation Flight Plan* (Washington D.C.: Headquarters United States Air Force (Future Concepts and Transformation Division)), November 2003, D-1.

officers articulate their thoughts in publications, staff work, and other forums. Moreover, the survey results at Appendix C indicate a combat mindset across three main subcultures—air refueling, intertheater and intratheater airlift. The following quotes by Gen Handy and Lt Gen Baker clearly articulate a new mindset that underpins the current and future MAF culture:

> As my time winds down as the Vice Commander of AMC, I felt it was important to offer a short parting shot on where we've been and what still needs to be done to ensure our focus on a combat mobility culture stays on course.
>
> As many of you recall, fourteen months ago I tasked the HQ staff and the Air Mobility Warfare Center to help us reshape the focus of this command. Since that time, we have developed new AFTTP 3-3s for all our major weapon systems, built more realistic training tables, and put in place transition courses at Altus and Little Rock; all of which will improve our combat focus and improve our ability to get better qualified aviators to the fight quicker. These efforts were major projects and took a combined effort from both the staff and many tactical-thinking folks from the field….The GWOT is not ending any time soon and we must continually prepare to fight the next war. Today's weapons officers are the linchpin that holds the line for all tactical aircrew training, but if we are to succeed in our efforts to build a true mobility combat culture in our Command, then we must all think like tacticians from Lieutenant to General Officer.[81]
>
> Weapons Officers throughout AMC…are the leaders of our ongoing "Combat Mobility" cultural transformation. The end of the Cold War and the advent of the GWOT have driven us to a more expeditionary mode of operations. This change means we also must renovate our core training, operations and planning culture. Moreover, the worldwide proliferation of MANPADS, anti-aircraft artillery, and small arms, has inspired revolutionary thinking into how we, as an integral part of the joint war fight, define risk. We have been forced to devise new and creative ways to avoid, defeat or mitigate threats that were inconceivable just a generation ago. Good news…AFTTP 3-3 is published! Now, it is incumbent upon us to develop and implement realistic, tactically-focused training programs that make our air mobility professionals more aware, more survivable and infinitely more combat effective in the joint combat area of responsibility.[82]

In summary, it is clear that AMC has embarked on a groundbreaking change, transforming into a tactical mentality, ready to go to war, prepared for the enemy, and forging a new combat mobility culture that permeates all levels of the organization.

---

[81] John R. Baker, "AMC Senior Tactician's Corner," *USAF Mobility Weapons Journal* 1, no. 2 (Spring 2005): 1
[82] Handy, 2.

Appendix A-- Non-State Groups with Shoulder Fired SAMs (1996-2001)[83]

Group	Location	Missile Type
Armed Islamic Group (GIA)	Algeria	Stinger (c)
Chechen Rebels	Chechnya, Russia	SA-7 (c), Stinger (c), Blowpipe (r)
Democratic Republic of the Congo (DRC) Rebel Forces	Democratic Republic of the Congo	SA-16 (r)
Harkat ul-Ansar (HUA)	Kashmir	SA-7 (c)
Hezbullah	Lebanon	SA-7 (c), QW-1 (r), Stinger (r)
Hizbul Mujahideen (HM)	Kashmir	Stinger (r)
Hutu Militiamen	Rwanda	Unspecified type (r)
Jamaat e Islami	Afghanistan	SA-7 (c), SA-14 (c)
Jumbish-i-Milli	Afghanistan	SA-7 (c)
Khmer Rouge	Thailand/Cambodia	Unspecified type (r)
Kosovo Liberation Army (KLA)	Kosovo	SA-7 (r)
Kurdistan Workers Party (PKK)	Turkey	SA-7 (c), Stinger (c)
Liberation Tigers of Tamil Eeelam	Sri Lanka	SA-7 (r), SA-14 (r), Stinger (c), HN-5 (c)
Oromo Liberation Front (OLF)	Ethiopia	Unspecified type (r)
Palestinian Authority (PA)	Palestinian autonomous areas and Lebanon	SA-7 (r), Stinger (r)
Popular Front for the Liberation of Palestine—General Command (PFLP-GC)	Palestinian autonomous areas and Lebanon	SA-7 (c)
Provisional Irish Republican Army (PIRA)	Northern Ireland	SA-7 (c)
Revolutionary Armed Forces of Columbia (FARC)	Columbia	SA-7 (r), SA-4 (r), SA-16 (r), Redeye (r), Stinger (r)
Rwanda Patriotic Front	Rwanda	SA-7 (r), SA-16 (r)
Somali National Alliance	Somalia	Unspecified Types (r)
Al Qaeda/Taliban	Afghanistan	SA-series (c), Stinger (c), Blowpipe (c)
National Liberation Army (ELN)	Columbia	Stinger (r), Unspecified types (r)
National Liberation Army (UCK)	Macedonia	SA-18 (c)
National Union for the Total Independence of Angola (UNITA)	Angola	SA-7 (c), SA-14 (r), SA-16 (r), Stinger (c)
United State WA Army	Myannmar	SA-7 (c), HN-5N (c)
United Somali Congress—Somali Salvation Alliance (USC-SSA)	Somalia	Unspecified types (r)
Note: (c) is possession confirmed through intelligence sources or actual events; (r) is reported but not confirmed.		

[83] Christopher Bolkom, et al, *Homeland Security: Protecting Airliners from Terrorist Missiles* (Washington, D.C.:Congressional Research Service Report for Congress, 22 October 2004), 5-6; available from http://www.fas.org/irp/crs/RL31741.pdf; Internet.

Appendix B—Countries Know to Possess MANPADs[84]

Abu Dhabi
Afghanistan
Angola
Argentina
Australia
Austria
Bahrain
Belgium
Benin
Bosnia
Botswana
Brazil
Bulgaria
Cambodia
Canada
Cape Verde Islands
Chile
Chad
China
Croatia
Cuba
Cyprus
Czech Republic
Denmark
Dubia
Ecuador
Egypt
Ethiopia
France
Finland
Germany
Ghana
Greece
Guinea
Guyana
Hungary
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Japan
Jordan
Kuwait
Laos
Lebanon
Libya
Malawi
Malaysia
Mali
Mauritius
Mexico
Mongolia
Morocco
Mozambique
Netherlands
Nicaragua
Nigeria
North Korea
Norway
Oman
Pakistan
Peru
Philippines
Poland
Portugal
Qatar
Romania
Saudi Arabia
Seychelles
Sierre Leone
Singapore
Slovakia
Slovenia
Somalia
South Africa
South Korea
Spain
Sudan
Sweden
Switzerland
Syria
Tanzania
Thailand
Tunisia
Turkey
Uganda
United Arab Emirates
United Kingdom
Venezuela
Yugoslavia
Yugoslavia
Zambia
Zimbabwe

[84] Thomas Hunter, "Manportable SAMs: The Airline Anathema," *Jane's Intelligence Review*, October 1996, 476.

Appendix C—MAF Values and Beliefs Survey

An informal survey was conducted by the author to ascertain the underlying values and beliefs of 24 MAF operators from five different airframes. A summary of the results is found below:

Crewmembers surveyed: 4 KC-10 pilots, 7 KC-135 pilots, 2 C-130 pilots/1 C-130 Navigator, 6 C-17 pilots, and 4 C-5 pilots. All crewmembers surveyed were USAF Majors.

The scale used to rate each statement was as follows: **1 – Strongly Disagree, 2-Slightly Disagree, 3-Neither Disagree nor Agree, 4- Slightly Agree, 5 Strongly Agree**

Statement \ Average	Overall	Tankers (KC-135/ KC-10)	Intratheater Airlift (C-130s)	Intertheater Airlift (C-5s/C17s)
It is important for AMC to pursue new technologies for my aircraft so I can better operate and survive in a combat environment.	4.83	4.73	4.67	5.00
The MAF Culture appears to be changing to have a more tactical focus.	4.25	4.18	4.00	4.40
Peers that operate my airframe are more combat focused today than 10 years ago.	4.25	4.55	3.33	4.20
Junior MAF crewmembers (less than 4 years experience) that operate my airframe have underlying assumptions, values and beliefs that are combat focused due to the new warfighting mindset that has permeated the MAF.	4.08	4.18	3.33	4.20
I have a more tactical, combat focused mindset today than I did 10 years ago (My values and beliefs are more combat focused).	4.04	4.00	3.00	4.44
A warfighting, tactical mindset exists at the Group/Wing level for my airframe.	4.04	3.91	4.33	4.10
A warfighting, tactical mindset exists at the Squadron level for my airframe.	4.00	3.55	4.67	4.30
Mobility Doctrine is more combat focused today than it was 5 years ago.	3.88	4.00	4.33	3.60
The MAF Organizational structure is changing to embrace a warfighting mindset.	3.77	3.80	3.67	3.78
I am confident that the tactical doctrine (TTPs) for my aircraft prepares me to successfully fly into a combat zone and mitigate or defeat the threat.	3.75	3.36	4.00	4.10
MAF leadership has embraced the new tactical culture.	3.67	3.73	3.33	3.70
Initial Qualification Training for my airframe includes a combat focus that was not there 5 years ago.	3.65	3.20	3.67	4.10
A warfighting, tactical mindset exists at the MAJCOM level (AMC) for my airframe.	3.58	3.64	4.00	3.40
The TACC is changing to become more combat focused.	3.13	3.30	3.33	2.90
The Combat Mobility "focused" culture is temporary and will revert to a non-combat mentality once the war in Iraq is over	2.83	2.82	2.33	3.00

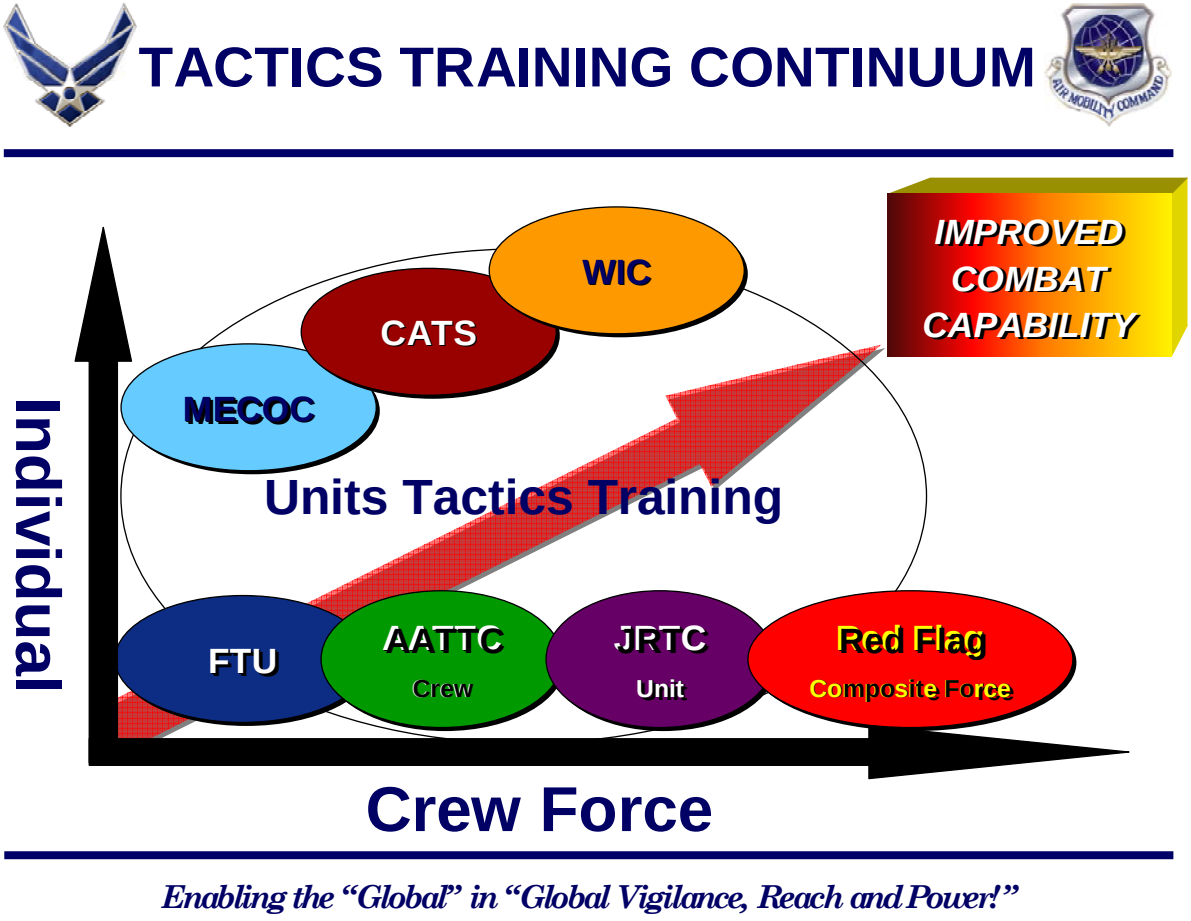
Appendix C—MAF Values and Beliefs Survey (Continued)

12 of the 24 MAF crewmembers responded to the following optional request:

OPTIONAL: If you agree that there is a culture change going on, please give your opinion on the primary reason for the change.

Pilot	Reason Given for MAF Culture Change
KC-10	The change is due to the ongoing GWOT. We spend a great deal of time in combat zones. Young crewmembers are often more familiar with deployed locations than with home stations. We had no choice but to become more combat-minded.
KC-10	Two aircrews were shot at by MANPADS and stated they were not prepared by AMC to operate tactically in a combat environment nor prepared to react to the event they were involved in.
KC-135	Two big changes in the KC-135 community have made an impact. 1. A formal tactics training program has been developed. All aircrew are required to be proficient prior to any deployment. Also, we now have formal TTPs in the 3-3. 2. KC-135 WIC is growing and populating units with patch wearers.
KC-135	The war on terror and the increase in the number of deployments over the last 12 years has changed the way we operate in the tanker. We are definitely more combat focused that when I came into AMC 12 years ago.
C-130	I agree there is a culture change, and it is the GWOT that seems to be driving it.
C-130	I believe that Big AMC is having a little bit of a culture shift, but little AMC (C-130s) have had a combat focus for some time. It is getting more attention now, but has remained constant throughout the years with a slight shift with the new 3-3. GWOT is the primary reason for the shift.
C-17	There is a cultural change and it has to do with heavies actually getting shot at during operations
C-17	The primary reason is the environment MAF crews are operating in.
C-17	I think the change is simply due to the fact that we, C-17s and C-130s, are flying into war zones everyday. Most of us have been shot at multiple times. Combat zone flying is more familiar to many, if not most new C-17/C-130 pilots, than flying in their own home station environment. I know that when I entered the C-17 community in 2002, I was much more familiar with the flying environment at Balad AB in Iraq than McChord AFB.
C-17	The biggest culture change in the C-17 has come from the stand up of the Special Operations Low Level (SOLL) II program. While much of what the division does is not publicized, AMC has treated this division at Charleston as an unofficial "test bed" for TTPs and a significant amount of these have been incorporated into the WIC at McGuire and community wide as well. In fact, several of the initial cadre to stand up the C-17 WIC were former SOLL II Aircraft CCs.
C-5	GWOT is the primary reason. Once a couple mobility aircraft were actually hit by SAMs, it was a shock to the system and caused a refocus on combat ops.
C-5	MANPAD threats drove the change in culture before current ops in SWA did. SWA just reinforced that it was the right thing to do.

Appendix D—Tactics Training Continuum[85]



[85] AMCI 11-207, Attachment 2.

Bibliography

Air Force Doctrine Document (AFDD) 1. Air Force Basic Doctrine, 17 November 2003.

Air Force Tactics, Techniques and Procedures (AFTTP) 3-1.25. *Tactical Employment, C-130* (U), 11 April 2004. (Secret) Information Extracted is unclassified.

Air Mobility Command Instruction (AMCI) 11-207, Air Mobility Command Weapons and Tactics Program, 14 June 2005

Baker, John R. "AMC Senior Tactician's Corner." *USAF Mobility Weapons Journal* 1, no. 2 (Spring 2005): 1.

Berger, Major Alexander, Director of Operations, AMC Air Intelligence Squadron. Memorandum via email. To Major Dennis Tucker, Student Air Command and Staff College. Subject: RE: Need Help, 28 February 2006.

Bolkom, Christopher, et al. *Homeland Security: Protecting Airliners from Terrorist Missiles.* Washington, D.C.:Congressional Research Service Report for Congress, 22 October 2004. On-line. Internet, 20 February 2006. Available from http://www.fas.org/irp/crs/RL31741.pdf.

Chankin-Gould, Sarah and Schroeder, Matt. "MANPADS Proliferation." January 2004, n.p On-line. Internet, 20 February 2006. Available from http://www.fas.org/campaigns/MANPADS/MANPADS.html.

Downing, Glen R. "The Mobility Air Forces: Unifying Culture for Contemporary Challenges." Fort Leavenworth, Kansas: School of Advanced Military Studies, United States Army Command and General Staff College, 2005.

Fravel, Linden A. III. "Tactics: AMC's Phoenix—Part 1." *USAF Mobility Weapons Journal* 2, no. 2 (Fall 2005): 8-9.

Freese. Thomas A. "Force Protection and Strategic Air Mobility: The MANPAD Challenge. Newport, Rhode Island: Naval War College, 5 February 1998.

Griffith, Joe T. "The Future of Combat Airlift in MAC." Research Study no. 0565-70. Maxwell AFB, Alabama: Air Command and Staff College, 1970.

Gulick, Ed. "Leader Envisions Future of Air Mobility Command." U.S. Department of Defense Tranformation, November 2005, n.p. On-line. Internet, 25 February 2006. Available from http://www.defenselink.mil/transformation/articles/2005-11/ta110205b.html.

Handy, John W. "AMC Commander's Welcome." *USAF Mobility Weapons Journal* 1, no. 1, (Fall 2004): 2.

Petro, Matt. "Air Refueling and Night Vision Devices: Two Necessities to Combat Operations

and their Necessary Co-Existence." *USAF Mobility Weapons Journal* 1, no. 1, (Fall 2004): 23-29.

Hershmann, Shane M. "Employment of the C-17 in Airdrop and Airland Operations in Closing the Force." Carlisle Barracks, Pennsylvania: U.S. Army War College, 18 March 2005.

Hewish, Mark and Lok, Joris Janssen. "David versus Goliath." *Jane's International Defense Review*, April 2004, 46-55.

Hughes, Richard L., Ginnett, Robert C., and Curphy, Gordon J. *Leadership: Enhancing the Lessons of Experience, 5th ed.* Boston, MA: McGraw-Hill Co, 2005.

Hunter, Thomas. "Manportable SAMs: The Airline Anathema," *Jane's Intelligence Review*, October 1996, 474-476.

Joint Publication 4-01.1. *Joint Tactics, Techniques, and Procedures for Airlift Suppport for Joint Operations*, 20 July 1996.

Kotter, John P., *John P. Kotter on What Leaders Really Do* (Boston: Harvard Business School Press, 1999).

"Long Time Coming." *Air Force Magazine Online,* n.p. On-line. Internet, 14 February 2006. Available from http://dc01-cdh-afa03.tranguard.net/AFA

Martinez, Rachel. "Conference Changes Mobility Culture." *McGuire Airtides* 55, no. 31 (6 August 2004), 3-4.

Nielson, Josh and Terry, Jason. "RTIC for One? RTIC for All!!" *USAF Mobility Weapons Journal* 2, no. 2 (Fall 2005): 10-14..

Rachal, Major Rick. Air Command and Staff College. Interviewed by author, 17 February 2006.

Rolfsen, Bruce. "High-Tech Defenses Debuting on Aircraft." *Air Force Times,* 6 February 2006, n.p. On-line. Internet, 30 January 2006. Available from http://ebird.afis.mil/ebfiles/e20060130414064.html.

Tirpak, John A. "Mobility Boss Says Airlift Upgrades Key to New Strategy." *Aerospace World,* August 2001, n.p. On-line. Internet, 18 February 2006. Available from http://www.afa.org/magazine/aug2001/0801world.asp.

"The MANPADS Menace: Combating the Threat to Global Aviation from Man-Portable Air Defense Systems." *Fact Sheet, Bureau of Political Military Affairs, Washington D.C.,* 20 September 2005, n.p. On-line. Internet, 20 February 2006. Available from http://www.fas.org/asmp/campaigns/MANPADS/2005/Factsheet20sep05.htm.

U.S. Department of Defense. *Elements of Defense Tranformation.* Washington D.C.: Office of the Secretary of Defense (Office of Force Transformation), October 2004.

U.S. Department of Defense. *Quadrennial Defense Review Report.* Washington, D.C.: Office of the Secretary of Defense, 6 February 2006.

U.S. Department of the Air Force. *Global Mobility CONOPS,* 30 January 2006. On-line. Internet, 20 February 2006. Available from https://private.amc.af.mil/a3/a35/gm_revision.html.

U.S. Department of the Air Force. *Operating Concept, Mobility Air Forces Integrated Flight Management.* Scott Air Force Base, Illinois: Headquarters Air Mobility Command, 8 October 2004.

U.S. Department of the Air Force. *The U.S. Air Force Transformation Flight Plan.* Washington D.C.: Headquarters United States Air Force (Future Concepts and Transformation Division), November 2003.

Volcheff, Maj Gen Mark., Director of Operations, Air Mobility Command. Memorandum. To Mobility Air Force Wing and Operations Group Commanders. Subject: Changing Our Mobility Culture, 3 March 2004.

Volcheff, Maj Gen Mark., Director of Operations, Air Mobility Command. Memorandum. To Mobility Air Force Wing and Operations Group Commanders and Personnel. Subject: Changing Our Mobility Culture Memo #2, 9 July 2004.

Volcheff, Maj Gen Mark., Director of Operations, Air Mobility Command. Memorandum. To Mobility Air Force Wing and Operations Group Commanders and Unit Personnel. Subject: Changing Our Mobility Culture, October 2004.

White, Major Todd. Air Command and Staff College. Interviewed by author, 16 February 2006.

Wilkes, Bobby J. "Expeditionary Mobility Task Force: Projecting Combat Power." *Air and Space Power Journal,* Summer 2005, n.p. On-line. Internet, 14 February 2006. Available from http://www.airpower.maxwell.af.mil/airchronicles/apj/apj05/phisum05.html.

Yetishefsky, Major. "AMC Training Focus." Powerpoint Presentation, 26 Jul 05. On-line. Available at https://private.amc.af.mil/a3/a37t/

Yolitz, Brian D. "Organizational Change: Is the United States Air Force Doing it Right?." In *Leadership, Command, and Communication Studies Academic Year 2006 Coursebook*. Edited by Sharon McBride, Maxwell AFB, AL: Air Command and Staff College, October 2005.